

NEW SOUTH AMERICAN ASTERACEAE COLLECTED  
BY E. W. D. HOLWAY

S. F. BLAKE

(WITH PLATE XIX)

The new species of Asteraceae here described form part of a collection made by E. W. D. HOLWAY and Mrs. MARY M. HOLWAY in Ecuador and Bolivia in 1920. A few have previously been found by other collectors, notably by J. N. ROSE, who visited a part of the same region in 1918. Although Professor HOLWAY's interest is primarily in rusts rather than flowering plants, his appreciation of the value of precise identification of host plants has resulted in the preparation of complete and well dried specimens which have considerably increased our knowledge of the phanerogamic flora of the regions in which he has collected. Not the least valuable result of his work in Central and South America is the discovery of many new species of flowering plants, particularly Asteraceae, represented by specimens far superior to those of many collectors who confine their attention to phanerogams.

**Achyrocline glandulosa**, sp. nov.—Perhaps suffrutescent below, 40 cm. high and more, branched; branches ascending, simple, like the stem densely glandular-pubescent, winged throughout by the decurrent leaf bases, the wings herbaceous, 1–1.5 mm. wide; leaves lanceolate or linear-lanceolate, 3.5–6 cm. long, 3.5–7 mm. wide, acuminate, not narrowed at the long-decurrent base, entire, green on both sides, densely glandular-puberulous, arachnoid-ciliate, triplicate-nerved; panicles rounded or flattish, 3–7 cm. wide, dense, the heads densely glomerate on the branchlets, the glomerules at base loosely pilose-tomentose like the branches of inflorescence; involucre oblong-cylindric, 4–4.5 mm. high, whitish or pale straw color, the phyllaries somewhat graduated, scarious, oblong or elliptic-ovate, obtuse, glabrous; ♀ flowers 4 or 5, ♂ 2; receptacle alveolate; ♀ corollas tubular-filiform, whitish, glabrous, 4-dentate, 3 mm. long, the style included; ♂ corollas slender, glabrous, 3 mm. long, 5-toothed, the throat slightly ampliate above; achenes oval, glabrous,



0.7 mm. long; pappus 3 mm. long, the slender bristles denticulate above, deciduous singly or in pairs.

ECUADOR.—Cuenca, September 10, 1920, *E. W. D.* and *M. M. Holway* 982 (type in U.S. National Herbarium no. 1058640).

Allied to *A. alata* (H. B. K.) DC., which has fuscescent phyllaries and leaves with long scattered hairs above. No reference is made in the description of that species to the glands which are so abundant in *A. glandulosa*, and which give it the fragrant odor of *Gnaphalium obtusifolium*.

**Achyrocline hyperchlora**, sp. nov.—Slender herb, 40 cm. high and more, branching, the base not seen; stem and branches flexuous, wingless, stipitate-glandular and scantily arachnoid-tomentose, glabrescent; leaves elliptic-lanceolate, 3–5.5 cm. long, 6–15 mm. wide, acuminate or acute, cuneate into a petioliform margined base decurrent for about 1 mm., entire, membranaceous, triplinerved, glandular on both sides, above green, pubescent with several-celled hairs, loosely arachnoid, glabrescent, beneath persistently griseous-arachnoid-pilose; panicles loose, much branched, leafy bracted, the heads in small glomerules, involved in wool at base; involucre 3 mm. high, whitish faintly tinged with straw color, the outermost phyllaries brownish toward base, the phyllaries oval to oblong, obtuse, scarious, stipitate-glandular and lanate-pilose toward base; ♀ flowers 4, ♂ 1; ♀ corollas whitish, tubular-filiform, stipitate-glandular at apex, 1.8 mm. long; ♂ corollas similar but thicker, 5-dentate; achenes immature; pappus 2 mm. long.

BOLIVIA.—Cochabamba, March 14, 1920, *E. W. D.* and *M. M. Holway* 406 (type in U.S. National Herbarium no. 1058598).

This species has the same sweet odor as *A. glandulosa*. It is of the *A. vargasiana* group, and is distinguished especially by the character of its leaves and its loose panicle.

**Polymnia eurylepis**, sp. nov.—“Slender tree 4–5 m. high”; branches stout, sulcate, densely hirsute-pilose with several-celled sordid hairs and somewhat glandular-puberulous, glabrescent; leaves opposite; petioles rather narrowly margined, densely pubescent like the stem, 1–3.5 cm. long; blades broadly ovate or rhombic-ovate, 7–19 cm. long, 4.5–11.5 cm. wide, acuminate, at base broadly cuneate, then gradually cuneate to the base of the petiole, remotely



denticulate (teeth minute, about 5 mm. apart), submembranaceous, above densely glandular-puberulous along the nerves, essentially glabrous on surface, beneath duller green, evenly but not densely hirsute-pilose, densely so along the veins and somewhat glandular there, triplinerved above the base and loosely prominulous-reticulate beneath, bullate in age above; heads 2 cm. wide, very numerous in panicles 9–19 cm. wide; bracts ovate, 6–15 mm. long; pedicels often decurved, glandular-puberulous and hirsute-pilose with several-celled hairs, 1–3.5 cm. long; disk subglobose, 6–8 mm. high, 8–13 mm. wide; outer phyllaries 5, broadly ovate, acutish, thin-herbaceous, ciliate, otherwise glabrous, 6–9 mm. long, 4.5–6 mm. wide; inner phyllaries (subtending the rays) oblong-oval, obtuse, membranous, hirsute-pilose, 6 mm. long; rays 12–14, yellow, exceeding the involucre, the lamina oval, 7 mm. long, 3.5 mm. wide, the tube densely hirsute-pilose; disk corollas yellow, sparsely hispid-pilose, 3.8 mm. long (tube 1.8 mm., throat broadly campanulate, 1.5 mm., teeth 0.5 mm.); pales acute, vittate, sparsely hirsute-pilose dorsally, 3.5 mm. long; ray achenes obliquely turbinate-subglobose, somewhat compressed, blackish, glabrous, 3 mm. long.

VENEZUELA.—Santo Domingo, altitude 2200 m., December 2, 1910, *Alfredo Jahn* 128.

ECUADOR.—Along fences, Cuenca, September 10, 1920, *E. W. D.* and *M. M. Holway* 974 (type in U.S. National Herbarium no. 1058639); Ficoa, near Ambato, February 1919, *A. Pachano* 135.

This species is related to *P. lehmannii* Hieron., which has broadly margined petioles, merely glandular-puberulous pedicels, smaller outer phyllaries (5.5 by 1.75 mm.), which are puberulous at base, and 7–10 rays. It is also near *P. arborea* Hieron., but in that species, represented in the National Herbarium by fragments from the type, the somewhat larger outer phyllaries are densely stipulate-glandular and sparsely hirsute-pilose on the back. HOLWAY'S label gives the height of the plant as 12–15 ft. PACHANO calls it a "slender tree," and gives the vernacular name as "polaco"; JAHN gives the name "ánime."

**Monopholis**, gen. nov.—Shrubs with large alternate serrulate or subentire leaves and many-headed terminal panicles of small pale yellow cylindric heads; heads homogamous or heterogamous, the disk flowers hermaphrodite, fertile, those of the ray when present pistillate; involucre about 3-seriate, graduate, passing into the pales, the phyllaries chiefly linear-elliptic or elliptic, indurated-



subherbaceous, appressed; receptacle small, convex; pales firm, subindurate, persistent, all or the inner with thinner inflexed margins, more or less completely inclosing the achenes; ray corollas usually none, when present solitary, ligulate, fertile, the lamina oval, bidenticulate to trifid; disk corollas with slender tube, short broadly campanulate throat, and 5 equal or longer reflexed teeth; stamens with minutely sagittate base and ovate terminal appendages; style branches rather short, slightly recurved, with deltoid obtuse papillose-hirsutulous tips; achenes linear-fusiform, narrowed to the callous base, often shortly subrostrate, more or less compressed, lenticular or trigonous in cross-section, wingless, glabrous; pappus of a single usually broad deltoid to rhombic-lanceolate or oblong paleaceous persistent awn borne on the inner side of the achene, or rarely wanting.—Type species *M. hexantha* Blake.

A genus of four closely related species from the mountains of Ecuador and Peru, related on the one hand to *Verbesina*, on the other to the imperfectly known *Monactis* H. B. K. In habit and many other characters it makes a rather close approach to the Andean species of the section LIPACTINIA of *Verbesina*, but differs greatly in its linear-fusiform subrostrate wingless achene with a pappus of a single broad paleaceous awn. Its relationship to *Monactis* is closer, but the same characters of achene and pappus suffice to distinguish it. The short, broadly campanulate corolla throat equaled or exceeded by the spreading or reflexed teeth is also characteristic of *Monopholis*. The genus may be inserted in the system next to *Monactis*.

In addition to the two species here described as new, two species described by HIERONYMUS under *Chaenocephalus* but referable to this genus are represented by fragments in the National Herbarium. The following key will serve to separate the species.

Heads chiefly pedicellate, the pedicels 1–7 mm. long.

Heads 6 or 7-flowered, 6–8 mm. high (excluding the corollas), 1.5–3 mm. thick in fruit; involucre 3.5–4.5 mm. high; broader phyllaries 1–1.5 mm. wide.....1. *M. hexantha*

Heads about 12-flowered, 7–9 mm. high (excluding the corollas), 3–4 mm. thick in fruit; involucre 5–6 mm. high; broader phyllaries 1.8 to 2 mm. wide.....2. *M. pallatangensis*

Heads chiefly sessile, rarely short-pedicellate.

Branches loosely sordid-puberulous; leaves broadly ovate; ♂ flowers 8–11, ♀ 0; pappus awn 1.3–1.5 mm. long.....3. *M. holwayae*

Branches “densely velvety-pubescent”; leaves lance-ovate or lanceolate; ♂ flowers 7 or 8, ♀ 1 or 0; pappus awn 0.4–0.8 mm. long

4. *M. jelskii*



1. **Monopholis hexantha**, sp. nov.—Shrub (or tree?); branches flexuous, striate-angulate, 4 mm. thick, obscurely griseous-puberulous with matted hairs; branchlets of the year fuscous, sordid-puberulous with loose several-celled subglandular hairs; internodes 1–2 cm. long; leaves alternate, often with fascicles of reduced leaves in their axils; petioles slender, naked, puberulous, 7–13 mm. long; blades lance-ovate or the smaller lanceolate, 6–12 cm. long or more, 1.8–5.5 cm. wide, acuminate, at base acutely cuneate into the petiole, serrulate (teeth depressed, less than 1 mm. high, 2–4 mm. apart) or the smaller entire or subentire, pergamentaceous, above green, harshly tuberculate-hispidulous with mostly deciduous hairs, beneath densely and softly griseous-tomentose-pilosulous with crisped hairs and gland-dotted, triplinerved above the base, bullate-rugulose above, prominulous-reticulate beneath; panicles terminating the branchlets, many-headed, flattish or rounded, 9–13 cm. wide, sordid-puberulous, the lower branches subtended by reduced leaves, the upper bracts linear, minute; pedicels 5 mm. long or usually less, often suppressed; heads discoid, 6 or 7-flowered, cylindric, 6–8 mm. high, 1.5–3 mm. thick; involucre graduate, about 3-seriate, 3.5–4.5 mm. high, passing gradually into the receptacular pales, the phyllaries linear-oblong to elliptic or sometimes elliptic-obovate, obtuse or rounded, subherbaceous-indurated, greenish-white, sordid-ciliate, somewhat glandular-puberulous, the outermost with narrow thinner sometimes purplish-tinged margins; corollas apparently pale yellow, the tube sparsely pilose with several-celled hairs, 1.8 mm. long, the throat broadly campanulate, glabrous, 0.8–1 mm. long, the 5 teeth lance-ovate, acute, spreading or reflexed, glabrous, 1 mm. long; pales linear-elliptic, obtuse, somewhat puberulous and ciliolate, about 5 mm. long, similar to the inner phyllaries but longer, their margins somewhat thinner, inflexed and inclosing the achenes, triangular or rhombic in cross-section; achenes linear-fusiform, 3.5–4.5 mm. long, 0.6 mm. wide, lenticular or trigonous in cross-section, shortly subrostrate, blackish-brown, with callous whitish carpopod, glabrous, finely papillose; pappus awn rhombic-lanceolate or oblong, flat, acute or obtuse, usually sparsely denticulate, 1.2–1.6 mm. long, about 0.3 mm. wide.



ECUADOR.—Cuenca, September 10, 1920, *E. W. D.* and *M. M. Holway* 973 (type in U.S. National Herbarium no. 1058646).

2. ***Monopholis pallatangensis*** (Hieron.) Blake.—*Chaenocephalus pallatangensis* Hieron. Bot. Jahrb. Engler 29:47. 1900.

Known only from the type collection made by SODIRO (no. 38) in the Pallatanga Valley, Ecuador. Fragments are in the U.S. National Herbarium. HIERONYMUS describes the heads as 9 or 10-flowered, but I have found 12 flowers (all tubular) in each of two heads dissected.

3. ***Monopholis holwayae***, sp. nov.—Branches stoutish, flexuous, striate-ridged, sordid-puberulous with crisped hairs; internodes 2–5.5 cm. long; leaves alternate; petioles pubescent like the stem, naked, 7–15 mm. long; blades ovate, 8–18 cm. long, 3–8 cm. wide, acuminate, acutely cuneate into the petiole, remotely crenulate-serrulate and somewhat repand or subentire, pergamentaceous, above deep green, densely and harshly tuberculate-hispidulous, along the veins sordid-puberulous, bullate in age, beneath rather densely and softly griseous-pilosulous-tomentose and gland-dotted, sordid-pilosulous along the chief veins, triplinerved above the base, prominulous-reticulate beneath; panicles terminating the branchlets, flattish or convex, many-headed, 8–10.5 cm. wide, sordid-puberulous with crisped subglandular hairs; pedicels usually obsolete, sometimes up to 2 mm. long; heads discoid, 8 to 11-flowered, cylindric, 9–10 mm. high, 2.5–3.5 mm. thick; involucre graduate, about 3-seriate, 4–5 mm. high, the phyllaries linear-elliptic or the inner oblong, obtuse, subindurate below and with thinner hyaline-subherbaceous greenish-yellow tip, sordid-ciliate, sparsely glandular, passing into the pales of disk; corollas apparently pale yellow, the tube sparsely long-pilose with several-celled hairs, 2 mm. long, the broadly campanulate glabrous throat 1 mm. long, the lance-ovate acute reflexed glabrous teeth 1.5 mm. long; pales elliptic, obtuse, sordid-ciliate, dorsally sordid-pilose and somewhat glandular, about 7 mm. long, the inner with inflexed margins more or less closely enveloping the achenes, the outer flattish; achenes similar to those of *M. hexantha* but with more acutely tapering base, 4.5 mm. long; pappus awn 1.3–1.5 mm. long.

ECUADOR.—Cuenca, September 15, 1920, *E. W. D.* and *M. M. Holway* 989 (type in U.S. National Herbarium no. 1058649).

The species is named in compliment to Mrs. MARY M. HOLWAY, who accompanied Professor HOLWAY on his South American trip.



4. **Monopholis jelskii** (Hieron.) Blake.—*Chaenocephalus jelskii* Hieron. Bot. Jahrb. Engler 36:494. 1905.

Known only from the type collection by JELSKI (no. 698), made near Tambillo, Peru, August 10, 1878. Fragments are in the U.S. National Herbarium. The pappus awn is rarely wanting in some of the flowers of a head, as noted by HIERONYMUS, but I have seen no case in which there was a second shorter awn, such as he describes, present in the pappus. This appearance may have been due to a splitting of the awn into two, the possibility of which is indicated by the occasional occurrence of a deeply emarginate or bifid awn in this or other species.

**Wedelia holwayi**, sp. nov.—Shrub, trichotomously branched; branches slender, hispidulous and hispid hirsute with tuberculate-based spreading or reflexed hairs 1 mm. long or less; leaves opposite; petioles hirsute, 1–3 mm. long; blades lance-ovate, 3.5–6 cm. long, 1–2 cm. wide, acuminate, cuneate at base, remotely serrulate (teeth 4–10 pairs, 3–7 mm. apart), papery, above very harshly tuberculate-hispidulous and tuberculate-hirsute, beneath equally green, hirsutulous and hirsute, triplinerved, prominulous-reticulate beneath; heads in threes at apex of stem and branches, 2–3 cm. wide, on densely hispidulous and hirsute naked or 1-bracteate peduncles 2–6 cm. long; disk 1–1.3 cm. high, 1.3–1.6 cm. thick; involucre 3 or 4-seriate, graduate, 1–1.2 cm. high, the outermost phyllaries obovate-oblong, herbaceous throughout or indurated at base, acutish to obtuse, ciliate, tuberculate-glandular and sparsely tuberculate-hirsute, 5–8 mm. long, 3–4 mm. wide, the innermost elliptic-oblong or oblong with membranous-herbaceous ciliate rounded tip, on back essentially glabrous, the middle series intermediate in characters, all erect or with loose tips; rays about 12, golden yellow, fertile, the lamina elliptic, 8–14 mm. long, 3–4 mm. wide; disk corollas yellow, hispidulous toward base of throat, 6.5–7 mm. long (tube 2–2.5 mm.), the teeth papillose-hispidulous on margin within; pales subscarious, obtuse or acute, spinulose-denticulate above, 7–8 mm. long; ray achenes bluntly trigonous, not winged or auriculate, sparsely pilose, their pappus cyathiform, fimbriatulate, 0.8 mm. long, with a partly free awn 1 mm. long on the inner angle; disk achenes narrowly obovoid, thickened, densely pilose, wingless, without ears above, 3.8 mm. long, their pappus cyathiform, narrow, 1 mm. high, lacerate-fimbriate, with 1 awn 1.5 mm. long.



BOLIVIA.—Cochabamba, March 7, 1920, *E. W. D.* and *M. M. Holway* 376 (type in U.S. National Herbarium no. 1058597).

Nearest the Peruvian *W. forbesii* S. Moore, which has smaller lanceolate leaves, longer peduncles, and shorter involucre and rays.

**Wedelia isolepis**, sp. nov.—Apparently suffrutescent, dichotomously or trichotomously branched; stem and branches terete, evenly but not densely spreading-hirsute with scarcely tuberculate-based hairs 1 mm. long or less and somewhat puberulous, glabrate or glabrescent; internodes 8–16 cm. long; leaves opposite; petioles hirsute, 1.5–5 mm. long; blades ovate, 5–8 cm. long, 2.5–3.8 cm. wide, acute or acuminate, at base cuneate-rounded, remotely crenate-serrate or crenate-serrulate (teeth depressed, 3–8 mm. apart), papery, above deep green, harshly hispidulous and hirsute (the larger hairs with persistent lepidote-tuberculate bases), beneath paler green, evenly but not densely hirsutulous and along the veins spreading-hirsute, triplinerved above the base, prominulous-reticulate beneath; heads in threes at apex of stem and branches, 3.5–4 cm. wide, on naked densely hirsutulous and hirsute monocephalous peduncles 1.8–9 cm. long; disk 1–1.2 cm. high, 1.5–1.8 cm. wide; involucre 3-seriate, 10–11 mm. high, equal or the innermost series sometimes shorter, the two outer series of phyllaries equal, oval, herbaceous throughout or somewhat indurated at base, obtuse, rounded, or sometimes acutish, hirsute and minutely hirsutulous, the innermost equal or shorter, with ciliate, purplish, membranaceous tips, dorsally glabrous, all often reflexed at tip; rays 12, golden yellow, fertile, the lamina oval, tridentate, 15 mm. long, 7 mm. wide; disk corollas yellow, papillose-hispidulous on teeth, 6.5 mm. long (tube 2 mm.); pales acute, carinate, glabrous, yellowish and spinulose-denticulate above, about 5 mm. long; disk achenes obovoid, thickened, mottled, sparsely pilose, 3 mm. long; pappus cyathiform, 0.5 mm. high, fimbriolate.

BOLIVIA.—Sorata, April 14, 1920, *E. W. D.* and *M. M. Holway* 517 (type in U.S. National Herbarium no. 1058604).

Well distinguished by its involucreal characters.

**Helianthus hypargyreus**, sp. nov.—Evidently tall, herbaceous at least above; stem stout, pithy, subterete, densely and softly cinereous-pilosulous with reflexed or spreading hairs, glabrescent or glabrate; internodes 2–13 cm. long; leaves alternate; petioles



naked or margined above, those of the stem leaves 1-5 cm. long, densely cinereous-pilosulous; stem leaves ovate or broadly ovate, 6-15 cm. long, 3-8.5 cm. wide, acuminate, at base broadly rounded, then shortly cuneate into the petiole, crenate-serrate above the entire base (teeth 12-18 pairs, depressed-triangular, obtuse, 1-2 mm. high, 2-5 mm. apart), thin-papery, above dull greenish, densely and softly cinerous-pilosulous with ascending hairs with small tuberculate-subglandular bases, beneath very densely and softly argenteous-pilose (sometimes yellowish-tinged) with subappressed lucid hairs, triplinerved just above the base, the primary veins evident beneath, the secondaries mostly concealed by the pubescence; branch leaves smaller, sometimes subentire; heads 2-3 cm. wide, in corymbose panicles of 3-9 at tips of branches and branchlets, the pedicels 1-5.5 cm. long, densely tomentulose-pilosulous; disk depressed-subglobose, 8 to (fruit) 14 mm. high, 1.2 to (fruit) 1.8 cm. wide; involucre 3-seriate, graduate, 9-15 mm. high, the phyllaries lanceolate or lance-elliptic to oblong-lanceolate, with indurate vittate base and shorter or equal to (outermost) longer reflexed or spreading acute herbaceous tips, densely sericeous- or cinereous-pilose-tomentose outside above the sparsely pubescent indurated base, the herbaceous apex densely pilosulous; receptacle slightly convex; rays 12, golden yellow, neutral, the lamina hirsutulous dorsally, elliptic-oblong or oval, 2 or 3-denticulate, 7-13 mm. long, 3-5.5 mm. wide; disk corollas yellow, hirsutulous chiefly at base of throat and on teeth, 5.5 mm. long (tube 1.6 mm., teeth 0.8 mm.); pales acute, carinate, hirsutulous at apex and very sparsely along keel, about 8 mm. long; achenes oblong-obovate, strongly compressed, blackish, glabrous, 2.5-3 mm. long, 1.2 mm. wide; awns 2, subequal, deciduous, narrowly lance-subulate, hispidulous throughout, 2.5 mm. long; squamellae none.

ECUADOR.—Huigra, Province of Chimborazo, August 3, 1920, *E. W. D.* and *M. M. Holway* 815 (type in U.S. National Herbarium no. 1058651); same locality, August 18 and September 6, 1918, *J. N.* and *G. Rose* 22171 and 22568.

This rather handsome species is related to *H. imbaburensis* and *H. lehmannii* Hieron., both of which are now represented in the U.S. National Herbarium by fragments from the types. The former differs in its narrower entire leaves and much smaller heads, the latter in its black-purple disk and longer, acuminate phyllaries.



**Perymenium ecuadoricum**, sp. nov.—Shrub(?); stem (above) and branches herbaceous, 4 mm. thick, harshly spreading- or ascending-hispidulous, or sometimes strigillose; leaves opposite; petioles naked, 7–20 mm. long, tuberculate-strigillose, hirsute-ciliate; blades ovate, 5–10.5 cm. long, 2.5–5 cm. wide, acuminate or acute, at base truncate-rounded or rounded to cordate, crenate-serrulate throughout (teeth about 32 pairs, obtuse, about 1 mm. high), thick-papery, above deep green, bullate-rugulose, harshly tuberculate-hispidulous, beneath densely and almost softly griseous-hirsutulous-pilosulous and along the veins hirsute, triplinerved, the veins and veinlets impressed above, densely prominulous-reticulate beneath; peduncles ternately arranged, terminal and from the upper axils, strigillose or erect-hirsutulous, 3.5–9.5 cm. long, bearing 2–4 heads on pedicels 1–5 cm. long, the bracts mostly very small, rarely leaflike; heads 2.5–3 cm. wide; disk subglobose, 7–8 mm. high, 8–10 mm. thick; involucre 4-seriate, graduate, 7–8 mm. high, the phyllaries broadly oval or the outermost oblong-ovate, with somewhat indurated base and shorter or subequal herbaceous or membranous-herbaceous rounded appressed tip, strigillose and ciliate, the inner glabrous above on back; rays 12, golden yellow, fertile, the lamina oblong-elliptic, 13 mm. long, 4.5 mm. wide; disk corollas yellow, papillose-hispidulous on teeth, 4.8 mm. long; pales obtuse to acute, minutely spinulose-denticulate on keel and toward apex, about 4 mm. long; disk achenes oblong, 2 mm. long, somewhat thickened but compressed, transversely rugulose, sparsely hispidulous above, often narrowly winged above on the inner side and there produced into an ear about 0.5 mm. high, sometimes also with a shorter tooth on the outer angle; pappus fragile, of about 10 unequal slender hispidulous awns 0.8 mm. long or less, and 1 awn twice as long.

ECUADOR.—Huigra, Province of Chimborazo, August 3, 1920, *E. W. D.* and *M. M. Holway* 828 (type in U.S. National Herbarium no. 1058652); same locality, August 18, 1918, *J. N.* and *G. Rose* 23820.

Closely related to the Peruvian *P. jelskii* (Hieron.) Blake (*Wedelia jelskii* Hieron. Bot. Jahrb. Engler 36:488. 1905), of the type of which ample fragments are now in the National Herbarium. In that species, however, the leaves beneath are pale green rather than griseous, and much less densely pubescent, and their petioles are only 4–7 mm. long, while the stem is rather sparsely strigillose.



**Steiractinia rosei**, sp. nov.—Shrub; stem stout, densely sordid-pilose with matted erectish or loose hairs with small tuberculate bases, glabrescent; leaves opposite; petioles pubescent like the stem, naked, 7–17 mm. long; blades ovate or the smaller lance-ovate, 8–14 cm. long, 3.5–7 cm. wide, acuminate, at base cuneate-rounded, closely crenate-serrate or crenate-serrulate with depressed teeth, papery, above green, densely and harshly tuberculate-hispidulous, along the chief veins sometimes densely pilose, beneath rather softly and densely griseous-pilosulous or short-pilose, triplinerved above the base, impressed-veined and somewhat bullate above, prominulous-reticulate beneath; peduncles in threes at tip of stem and branches, pubescent like the stem, 3–8 cm. long, bearing 1 or sometimes 2 or 3 heads, usually naked; heads about 4 cm. wide; disk depressed-subglobose, in flower 8–12 mm. high, 8–15 mm. thick, in fruit 1.2–1.5 cm. high, 1.5–2 cm. thick; involucre about 4-seriate, graduate, 9 to (fruit) 15 mm. high, the outermost phyllaries suborbicular, herbaceous or with indurated base, acute or apiculate to obtuse, strigillose and somewhat strigose, 7–9 mm. long, 5–7 mm. wide, the middle ones very broadly obovate-oval, with rounded ampliate submembranous loose upper portion, ciliate, on back somewhat strigose or hirsute and strigillose, 8–11 mm. wide, the innermost similar but smaller and shorter, often nearly glabrous; rays 10, neutral, yellow, the lamina elliptic-oblong, when well developed 2.5 cm. long, 8 mm. wide; disk corollas yellow, 5.8 to (in age) 7.8 mm. long (tube 1.5–2.8 mm., throat 3.5–4.2 mm., teeth sparsely hispidulous near tip, papillose along margin within, 0.8 mm. long); pales narrow, acute, carinate, spinulose-denticulate above, about 8 mm. long; achenes obovate-oblong, compressed, blackish, narrowly 2-winged, 3.8 mm. long, sparsely hirsute-pilose, on the wings hirsute-ciliate, slightly contracted at apex into a collar about 0.3 mm. high, this bearing the caducous pappus of about 30 slender unequal hispidulous awns 3 mm. long or less.

ECUADOR.—Huigra, Province of Chimborazo, August 4, 1920, *E. W. D.* and *M. M. Holway* 832. Vicinity of Loja, September 29–October 3, 1918, *J. N. Rose*, *A. Pachano*, and *G. Rose* 23290 (type in U.S. National Herbarium no. 1023389).

Related to *S. sodiroi* (Hieron.) Blake, which has larger heads and outer phyllaries rather abruptly contracted into an indurated base.



**Verbesina adenobasis**, sp. nov.—Shrubby (?); branches stout, herbaceous, pithy, sordid-pilosulous with crisped hairs, glabrescent; leaves opposite or subopposite; petioles sordid-pilosulous, marginate above, stout, 1–2.5 cm. long; blades broadly ovate or rhombic-ovate, 12–17 cm. long, 7–10 cm. wide, sometimes with a short triangular lobe on one side near middle, acute, at base rounded-cuneate, then cuneately decurrent on the upper part of the petiole, serrulate above the base (teeth about 40 pairs, slender, acutish, 1 mm. high), papery-pergamentaceous, above deep green, densely scabrid-hispidulous with glandular-tuberculate-based hairs, very densely so along the veins, beneath rather densely hirsutulous-pilosulous with crisped somewhat deciduous sordid hairs (those along the veins dense and brownish), triplinerved above the base, loosely prominulous-reticulate beneath; panicle terminal, ternately divided, very many-headed, flattish, about 22 cm. wide, densely sordid-pilosulous with several-celled crisped sordid subglandular hairs; bracts minute; pedicels 3–14 mm. long, sometimes obsolete, naked or with minute bractlets; heads narrowly becoming broadly campanulate, the disk 8–11 mm. high, 3–4.5 mm. thick; involucre about 3-seriate, graduate, about 4 mm. high, passing into the pales, the outermost phyllaries small, linear-oblong or spatulate-oblong, herbaceous, obtuse or rounded, glandular-puberulous, ciliolate, 1.5–2 mm. long, 1 mm. wide or less, the inner oblong, obtuse, 1–1.3 mm. wide, ciliolate, otherwise glabrous, greenish-white, all appressed; rays 2 or 3, pale yellow, fertile, the lamina oval, 4.5 mm. long, 2.8 mm. wide; disk flowers 11 or 12, their corollas pale yellow, pilose on tube with several-celled hairs, 5.5–6 mm. long (tube 1.5–2 mm., throat cylindric-funnelform); pales obtuse, glabrous or somewhat ciliolate, 6 mm. long; ray achenes trigonous, 3-awned; disk achenes obovate, very flat, essentially glabrous, 5 mm. long, the body 1.5 mm. wide, 2-winged, the wings 0.5–0.9 mm. wide; awns 2, subequal, subterete, sparsely hispidulous, 3.5–4 mm. long.

ECUADOR.—In shrubbery along roads, Cuenca, September 15, 1920, *E. W. D.* and *M. M. Holway* 991 (type in U.S. National Herbarium no. 1058641).

A member of the *V. arborea* group, related to *V. lloensis* Hieron., which has velvety-tomentose branches, oblong alternate leaves, 3–6 ray flowers or none, and 12–18 disk flowers.



**Verbesina latisquama**, sp. nov.—Shrub (?); branch stout, herbaceous, pithy, striate-subangulate, sordid-pilosulous with crisped hairs, glabrescent; leaves opposite; petioles stout, densely sordid-pilosulous, marginate above, the naked part 7–13 mm. long; blades ovate, 10–16 cm. long, 4.5–8.5 cm. wide, sometimes with a short obscure lobe on one or both sides near middle, acuminate, at base cuneate-rounded and decurrent into the petiole, serrulate (teeth about 40 pairs, depressed, apiculate, 0.5 mm. high), papery, above deep dull green, densely scabrid-hirsutulous (the hairs with lepidote-tuberculate not glandular bases) and along the veins very densely sordid-hirsutulous, beneath rather densely subtomentose-pilosulous with griseous matted hairs (probably finally deciduous) and along the veins densely sordid-pilosulous, triplinerved above the base; panicle terminal, ternately divided, pubescent like the stem, very many-headed, flattish, about 18 cm. wide; bracts small; pedicels 4–10 mm. long, or obsolete; heads narrowly campanulate, the disk 9–10 mm. high, 4–5 mm. thick; involucre 2 to 3-seriate, graduate, 4–5 mm. high, the outermost phyllaries oblong or obovate-oblong, 2–3 mm. long, 1.2–1.5 mm. wide, with subindurate base and subequal rounded herbaceous tip, ciliolate, somewhat glandular and puberulous, the inner similar but oval-oblong, thinner, 2 mm. wide; rays 2 or 3, pale yellow, fertile, the lamina oval, 6–7 mm. long, 3.5 mm. wide; disk flowers 8–12, yellow, pilose on tube with several-celled hairs, 6 mm. long; pales minutely apiculate from a rounded ciliate apex, sparsely pilosulous on back, about 6 mm. long; achenes (very immature) glabrous; awns subequal, hispidulous above, about 4.5 mm. long.

ECUADOR.—In shrubbery along roads, Cuenca, September 15, 1920, E. W. D. and M. M. Holway 994A (type in U.S. National Herbarium no. 1058643).

Allied to *V. adenobasis* described above, but with different pubescence and tooting of leaves, larger rays, and much broader phyllaries.

**Calea huigrensis**, sp. nov.—Shrub 1–3 m. high; stem terete, densely hispidulous-puberulous and hirsute-pilose with several-celled spreading hairs, the long ones mostly deciduous or sometimes entirely wanting; leaves opposite; petioles hispidulous-puberulous and gland-dotted, corky-thickened at base, 4–7 mm. long; blades



ovate, those of the main stem 4–7.5 cm. long, 2–3.8 cm. wide, acute, at base rounded or cuneate-rounded, serrulate (teeth small, 4–7 pairs), slightly revolute-margined, papery, harshly tuberculate-hispidulous above, beneath equally green, densely gland-dotted, hispidulous along the veins, 3-nerved and prominent-reticulate, above impressed-veined and rugose; heads in umbelliform clusters of 5–9 at tips of stem and branchlets, on densely puberulous pedicels 3–12 mm. long, 21-flowered, campanulate, 9–10 mm. high, 4–6 mm. thick; involucre 6–7 mm. high, about 5-seriate, graduate, the outermost phyllaries ovate, 1.5 mm. long, with callous tip, puberulous and gland-dotted, the middle phyllaries oblong, rounded, brownish above, subscarious, vittate, sometimes ciliolate, obscurely puberulous above or glabrous, the inner obovate-oblong or oblong, rounded, vittate, yellow, scarious, glabrous, all appressed; rays 3, fertile, golden yellow, erectish, the lamina oblong, 3 mm. long; disk flowers 18, their corollas golden yellow, glabrous, 6 mm. long (tube 2.2 mm., throat cylindric, 3.2 mm., teeth 0.6 mm.); pales yellow, scarious, acute, obtuse, or bifid, glabrous, lacerate toward tip, 4.5 mm. long; achenes of ray and disk similar, hispidulous, 2.5 mm. long; pappus of 20 linear-lanceolate acuminate paleaceous awns 5 mm. long.

ECUADOR.—Banks of old railway grade, Huigra, Province of Chimborazo, August 7, 1920, *E. W. D.* and *M. M. Holway* 856 (type in U.S. National Herbarium no. 1058628); same locality, altitude 1525–1675 m., August 21, 1918, *J. N.* and *G. Rose* 22283.

A member of the section EUCALEA, related to *C. umbellulata* Hochr., which has glabrous achenes and only 6–9 disk flowers. The heads of this species impart a strong saffron color to the water in which they are boiled.

**Gynoxys hypomalaca**, sp. nov.—Shrub 3 m. high; stem stout, subterete, cinerous-tomentulose; young branches angled, densely cinereous- or ochraceous-tomentose; leaves opposite; petioles closely ochraceous-tomentose, 1.5–2.7 cm. long; blades ovate or oblong-ovate, 7–12 cm. long, 2.8–4.5 cm. wide, acuminate, apiculate, at base broadly rounded, obscurely and remotely serrulate with inflexed glandular teeth, appearing entire, coriaceous, above deep green, sparsely pilosulous, quickly glabrate except along the puberulous costa and sometimes the veins, beneath densely and softly



griseous- or ochraceous-tomentose with rather loose crisped hairs, feather-veined, the lateral veins about 10 pairs, plane or impressed above, prominent beneath, the veinlets finely prominulous-reticulate above, loosely prominulous-reticulate beneath; panicles terminal, many-headed, 9-12 cm. wide, ochroleucous-tomentose, the linear-spatulate or linear tomentose bracts 1 cm. long or less; pedicels 5 mm. long or less; heads 11-14 mm. wide; disk 1 cm. high, 8 mm. thick; involucre 7 mm. high, bearing at base 3 or 4 linear bractlets about 4 mm. long, the phyllaries 8, densely ochraceous-tomentose on their exposed surface, oval-oblong, obtuse; rays 7, yellow, the lamina 6 mm. long; disk flowers 16-18, their corollas yellow, 7.5 mm. long, glabrous, the teeth papillose at tip; achenes (immature) glabrous; pappus bristles spinulose throughout, dilated at tip, 6 mm. long.

BOLIVIA.—Higher limit of trees, Soratá, April 22, 1920, *E. W. D.* and *M. M. Holway* 567 (type in U.S. National Herbarium no. 1058605).

This seems to be distinct from any of the very numerous species which have been described within recent years. Its closest ally is apparently *G. caracensis* Muschler, which, according to description, has leaves with appressed fulvescent-cinereous tomentum beneath, 8-10 ♀ and 11-14 ♂ flowers, and a somewhat different involucre. *G. hypomalaca* comes from the same locality where MANDON collected so many new species, but of the two new species properly belonging to the genus, briefly described by SCHULTZ BIPONTIUS from his collections, one, *G. mandonii*, is of a different group, while the other, *G. asterotricha*, agrees in most of the few characters given with *G. hypomalaca*, but is said to have cordate leaves.

**Mutisia sagittifolia**, sp. nov.—Stem slender, supported among shrubs, essentially terete, obsoletely winged in places, about 2 mm. thick, at first densely white-arachnoid-tomentose, soon glabrate and brown; internodes 6-30 mm. long; leaves alternate, terminated by a simple cirrhous 1-3 cm. long, the blades linear or linear-lanceolate, 6-8 cm. long, 5-8 mm. wide, usually falcate, acute and unequal at apex, sessile and sagittate-auriculate at base (the acute ears 3 mm. long), coriaceous, entire, revolute-margined, 1-nerved, above quickly glabrous, shining green, impressed-venulose, beneath densely and persistently white- or cinereous-arachnoid-tomentose; peduncles solitary at tips of branches, 2 cm. long, apparently decurved, bearing a single small bract, tomentose like the stem;



rays erect, the head 7.5 cm. high, about 5 cm. wide; involucre strongly graduate, about 7-seriate, 4.8 cm. high, funnelform-campanulate, the three outer series of phyllaries with deltoid or broadly ovate body and subequal or longer, abrupt, linear or linear-lanceolate, erect, herbaceous tip (the latter 8–12 mm. long, 1 mm. wide), glabrous, the body blackish-green, with thin slightly wine-colored margins; those of the 4 inner series oval or oblong-oval, at the broadly rounded apex apiculate and arachnoid-tufted, otherwise glabrous, the inner thin and wine-colored throughout, the outer similar to the three outer series in texture and color; pistillate flowers 13, glabrous, the corollas erect, the tube 2.2 cm. long, the outer lip elliptic, 4 cm. long, 1 cm. wide, acutely 3-toothed, apparently yellow inside and dark (reddish?) outside, about 14-nerved, the inner lip of two narrowly subulate segments 7 mm. long; disk corollas numerous, apparently yellow tinged with reddish, bilabiate, glabrous, 3.5 cm. long, the throat fenestrate below on both sides, the lips subequal, about 13 mm. long, one 3-denticulate at apex, the other 2-parted to base; achenes glabrous, those of the ray obcompressed, 4 mm. long, glabrous, their pappus of easily deciduous plumose setae 2.5 cm. long; achenes of the disk similar, the pappus of about 26 plumose setae united at extreme base; ray flowers with imperfect anthers and glabrous style branches about 0.6 mm. long; auricles of the stamens of the disk 5 mm. long, acuminate, somewhat denticulate toward apex.

ECUADOR.—On slopes of Mt. Pichincha, August 23, 1920, *E. W. D.* and *M. M. Holway* 941 (type in U.S. National Herbarium no. 1058634).

Allied to *M. mathewsii* Hook and Arn. in its sagittate-based leaves, but in that species the leaves are only 1.5 mm. wide, and the involucre only 3–3.5 cm. long. Only a single plant of the new species was found.

**Hieracium pazense**, sp. nov.—Perennial, with 2 or more stems, about 45 cm. high, the root not seen; stems rather stout, branched from the middle, rather densely hispid-pilose to middle with spreading or reflexed whitish hairs about 4 mm. long, with blackish tuberculate bases, above the middle hispid-pilose with wide-spreading blackish hairs 2–7 mm. long, with subulate bases, the shorter ones often tipped with blackish glands, and also not densely glandular-puberulous; stem leaves (below the inflorescence) about 5, the lower



obovate, 7.5–13 cm. long (including the 2–3.5 cm. long petiole), obtuse, apiculate, acuminate into the petiole, sparsely and minutely glandular-denticulate or subentire, evenly but not densely long-pilose above (the hairs whitish, with brownish tuberculate bases, about 4 mm. long), beneath green, similarly pubescent; other stem leaves oblong-elliptic or oblong-ovate to elliptic, 5–7 cm. long, 1.3–2.2 cm. wide, sessile by a broad base, otherwise similar to the lower leaves; chief branches of inflorescence about 5, the lowest subtended by leaves similar to the upper stem leaves, the others by reduced lanceolate or lance-linear bracts 1–4 cm. long, 1–10 mm. wide; panicle loose, 20–48-headed, about 12 cm. wide; pedicels pubescent like the upper part of the stem, 7–17 mm. long; involucre campanulate, 7–8 mm. high in fruit, 2-seriate, equal or subequal, without evident calyculus, the phyllaries lance-subulate, acuminate, blackish-green (the inner with thin pale margins), evenly but not densely pilose with spreading blackish eglandular hairs about 2 mm. long and especially at base pedicellate-glandular, the hairs blackish below, yellowish above like the glands; heads about 43-flowered, the corollas not seen; achenes blackish-brown, 2.2 to 2.5 mm. long, columnar-ovoid, abruptly contracted downward near base, gradually narrowed to apex, not at all beaked, about 12-ribbed, minutely hispidulous especially toward base; pappus brownish-straw-color, fragile, 5.5 mm. long, equaling the involucre.

BOLIVIA.—La Paz, March 19, 1920, *E. W. D.* and *M. M. Holway* 425 (type in U.S. National Herbarium no. 1058601).

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#### EXPLANATION OF PLATE XIX

*Monopholis hexantha* Blake.—*a*, branch,  $\times \frac{4}{5}$ ; *b*, head,  $\times 8$ ; *c*, disk corolla,  $\times 8$ ; *d*, stamens,  $\times 8$ ; *e*, style branches, much enlarged; *f*, *g*, two achenes in lateral and dorsal view,  $\times 8$ .